CCS Technical Documentation
RH-10 Series Transceivers

Troubleshooting – Antenna

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Introduction

This troubleshooting guide addresses potential failures that will affect the antenna performance of the phone, and discusses how to correct these failures.

For additional information, refer to *Diva Antenna RF Specifications and Plan* (DHS02167-EN-1.0)

Failures and Corrective Measures

Internal antenna not installed

A normal Diva antenna is shown in Figure 1. Figure 2 shows an internal antenna properly installed into the D-cover.

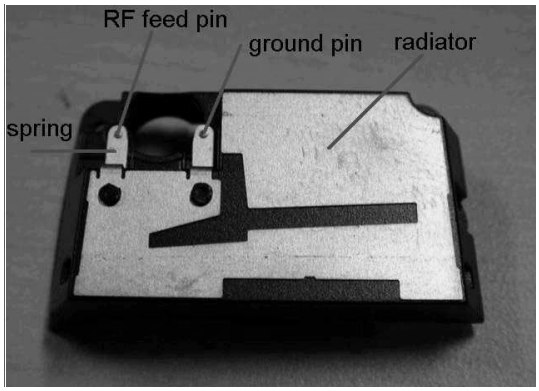

Figure 1: Normal Diva antenna

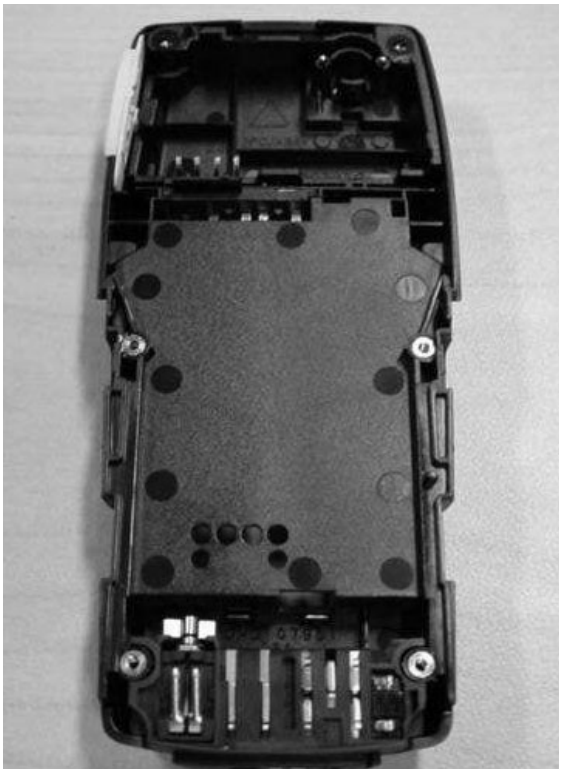

Figure 2: Internal antenna properly installed in D cover

If the internal antenna is missing, install one. If the radiator looks obviously damaged, then replace the internal antenna.

If no internal antenna is installed, the antenna gain will be degraded by more than 25 dB.

Wrong internal antenna installed

Figure 3 shows a Giovanni internal antenna.

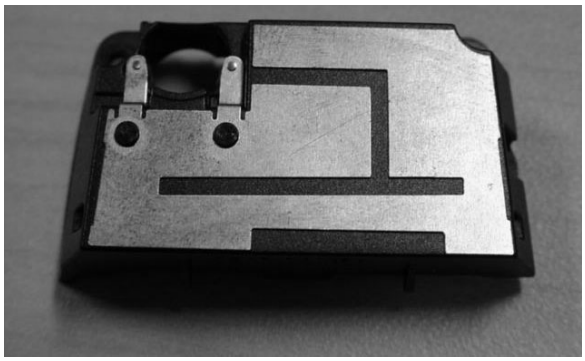

Figure 3: Giovanni internal antenna

If the wrong antenna is installed, install the correct one.

The correct internal antenna can be determined by looking at the sheet metal radiator. The radiator on the Diva antenna (Figure 1) is different from the Giovanni antenna (Figure 3). Installing the incorrect antenna will only change the antenna gain by about 1 dB, but the phone will not be compliant with our FCC submission.

Damaged springs or pins in internal antenna

Figure 4 shows the pins of the internal antenna. Figure 5 focuses on the springs for the pins of the internal antenna.

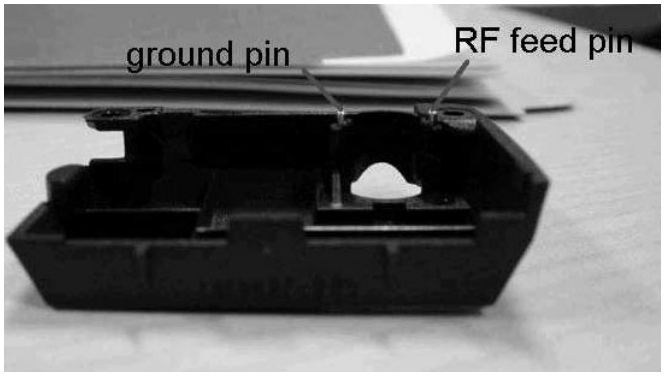

Figure 4: RF Pin and ground pin of Diva internal antenna

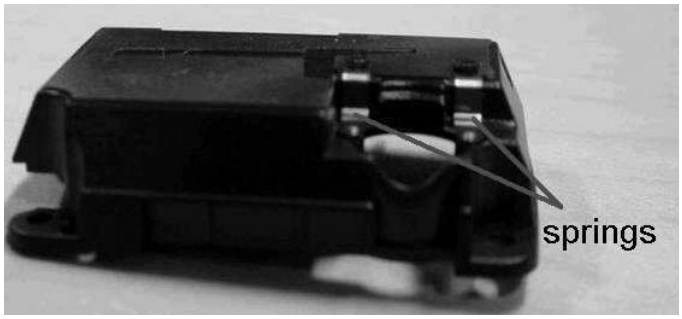

Figure 5: Springs for pins of Diva internal antenna

If either pin is pushed in, such that the pin is not clearly visible, as in Figure 4, then it is likely that the pins will not touch the PWB. If the springs are visibly bent upwards (as shown in Figure 5), then it is likely that the pins will not touch the PWB. If the pin gets stuck or has excessive friction in the plastic tube/guiding feature, then the spring will not work properly. In these situations, the antenna should be replaced.

If the RF feed doesn't touch the PWB then the antenna gain will degrade by more than 25 dB. If the ground pin doesn't touch the PWB, then the antenna gain may degrade about 5 to 10 dB.

Obstructed RF feed and ground pads for the internal antenna

Figure 6 shows the location of the RF feed and ground pads for the internal antenna.

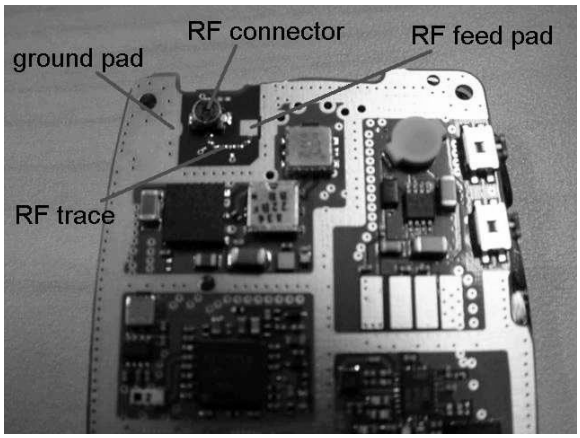

Figure 6: PWB layout of RF feed and ground pads

If the RF feed pad is obstructed, removed, or covered, then the RF feed pin will not touch the PWB and the antenna gain will degrade by more than 25 dB. If corrosion is present, then most likely the PWB and phone needs to be replaced. If the ground pad is obstructed, removed, or covered, the ground pin will not touch the PWB, and the antenna gain may degrade about 5 to 10 dB. In both of these cases, the pad should be cleared and/or cleaned.

If the RF connector is damaged or missing, then a new RF connector needs to be installed. A missing or broken RF connector breaks the RF path and will result in 25 dB or more degradation in the antenna performance.

If the RF trace is broken, then the PWB must be replaced. A broken RF trace will result in 25 dB or more degradation in the antenna performance.